

Subpart D—Testing Production-line Engines**§ 1042.301 General provisions.**

(a) If you produce engines that are subject to the requirements of this part, you must test them as described in this subpart, except as follows:

(1) Small-volume engine manufacturers may omit testing under this subpart.

(2) We may exempt Category 1 engine families with a projected U.S.-directed production volume below 100 engines from routine testing under this subpart. Request this exemption in your application for certification and include your basis for projecting a production volume below 100 units. You must promptly notify us if your actual production exceeds 100 units during the model year. If you exceed the production limit or if there is evidence of a nonconformity, we may require you to test production-line engines under this subpart, or under 40 CFR part 1068, subpart D, even if we have approved an exemption under this paragraph (a)(2).

(3) [Reserved]

(b) We may suspend or revoke your certificate of conformity for certain engine families if your production-line engines do not meet the requirements of this part or you do not fulfill your obligations under this subpart (see §§ 1042.325 and 1042.340).

(c) Other requirements apply to engines that you produce. Other regulatory provisions authorize us to suspend, revoke, or void your certificate of conformity, or order recalls for engine families without regard to whether they have passed these production-line testing requirements. The requirements of this subpart do not affect our ability to do selective enforcement audits, as described in 40 CFR part 1068. Individual engines in families that pass these production-line testing requirements must also conform to all applicable regulations of this part and 40 CFR part 1068.

(d) You may use alternate programs or measurement methods for testing production-line engines in the following circumstances:

(1) [Reserved]

(2) You may test your engines using the CumSum procedures specified in 40

CFR part 1045 or 1051 instead of the procedures specified in this subpart, except that the threshold for establishing quarterly or annual test periods is based on U.S.-directed production volumes of 800 instead of 1600. This alternate program does not require prior approval.

(3) You may ask to use another alternate program or measurement method for testing production-line engines. In your request, you must show us that the alternate program gives equal assurance that your engines meet the requirements of this part. We may waive some or all of this subpart's requirements if we approve your alternate program.

(e) If you certify an engine family with carryover emission data, as described in § 1042.235(d), and these equivalent engine families consistently pass the production-line testing requirements over the preceding two-year period, you may ask for a reduced testing rate for further production-line testing for that family. The minimum testing rate is one engine per engine family. If we reduce your testing rate, we may limit our approval to any number of model years. In determining whether to approve your request, we may consider the number of engines that have failed the emission tests.

(f) We may ask you to make a reasonable number of production-line engines available for a reasonable time so we can test or inspect them for compliance with the requirements of this part. See 40 CFR 1068.27.

§ 1042.305 Preparing and testing production-line engines.

This section describes how to prepare and test production-line engines. You must assemble the test engine in a way that represents the assembly procedures for other engines in the engine family. You must ask us to approve any deviations from your normal assembly procedures for other production engines in the engine family.

(a) *Test procedures.* Test your production-line engines using the applicable testing procedures in subpart F of this part to show you meet the duty-cycle emission standards in subpart B of this part. The not-to-exceed standards apply for this testing, but you need not

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do additional testing to show that production-line engines meet the not-to-exceed standards.

(b) *Modifying a test engine.* Once an engine is selected for testing (see § 1042.310), you may adjust, repair, prepare, or modify it or check its emissions only if one of the following is true:

(1) You document the need for doing so in your procedures for assembling and inspecting all your production engines and make the action routine for all the engines in the engine family.

(2) This subpart otherwise specifically allows your action.

(3) We approve your action in advance.

(c) *Engine malfunction.* If an engine malfunction prevents further emission testing, ask us to approve your decision to either repair the engine or delete it from the test sequence.

(d) *Setting adjustable parameters.* Before any test, we may require you to adjust any adjustable parameter on a Category 1 engine to any setting within its physically adjustable range. We may adjust or require you to adjust any adjustable parameter on a Category 2 engine to any setting within its specified adjustable range.

(1) We may require you to adjust idle speed outside the physically adjustable range as needed, but only until the engine has stabilized emission levels (see paragraph (e) of this section). We may ask you for information needed to establish an alternate minimum idle speed.

(2) We may specify adjustments within the physically adjustable range or the specified adjustable range by considering their effect on emission levels, as well as how likely it is someone will make such an adjustment with in-use engines.

(e) *Stabilizing emission levels.* You may stabilize emission levels (or establish a Green Engine Factor for Category 2 engines) before you test production-line engines, as follows:

(1) You may stabilize emission levels by operating the engine in a way that represents the way production engines will be used, using good engineering judgment, for no more than the greater of two periods:

(i) 300 hours.

(ii) The number of hours you operated your emission-data engine for certifying the engine family (see 40 CFR part 1065, subpart E, or the applicable regulations governing how you should prepare your test engine).

(2) For Category 2 engines, you may ask us to approve a Green Engine Factor for each regulated pollutant for each engine family. Use the Green Engine Factor to adjust measured emission levels to establish a stabilized low-hour emission level.

(f) *Damage during shipment.* If shipping an engine to a remote facility for production-line testing makes necessary an adjustment or repair, you must wait until after the initial emission test to do this work. We may waive this requirement if the test would be impossible or unsafe, or if it would permanently damage the engine. Report to us in your written report under § 1042.345 all adjustments or repairs you make on test engines before each test.

(g) *Retesting after invalid tests.* You may retest an engine if you determine an emission test is invalid under subpart F of this part. Explain in your written report reasons for invalidating any test and the emission results from all tests. If you retest an engine, you may ask us to substitute results of the new tests for the original ones. You must ask us within ten days of testing. We will generally answer within ten days after we receive your information.

§ 1042.310 Engine selection.

(a) Determine minimum sample sizes as follows:

(1) For Category 1 engines, the minimum sample size is one engine or one percent of the projected U.S.-directed production volume for all your Category 1 engine families, whichever is greater.

(2) For Category 2 engines, the minimum sample size is one engine or one percent of the projected U.S.-directed production volume for all your Category 2 engine families, whichever is greater.

(b) Randomly select one engine from each engine family early in the model year. For further testing to reach the minimum sample size, randomly select